

Docket No. F-8488

Ser. No. 10/517,895

REMARKS

Claims 3, 5-12, and 14-21 remain pending in this application. Claims 3, 8, 9 and 12-21 are rejected. Claims 5, 10 and 11 are allowed. Claims 1, 2 and 6 are previously cancelled. Claim 13 is cancelled herein. Claims 3, 5, 8, 10-12, and 15 are amended herein. Claims 3, 5, 8, 10, 11 and 15 are amended to more accurately relate that the output voltage is induced by the exciting coil and no change in scope is made. Claim 12 is amended to address the same and to incorporate the subject matter of claim 13 and portion of claim 3 relating the rotation detector.

INFORMATION DISCLOSURE STATEMENT CONSIDERATION REQUESTED

The Office Action alleges that the Information Disclosure Statement and Citation List filed February 15, 2008, failed to comply with 37 CFR §1.98(a)(2) in that it did not include a copy of reference JP 56 110304. Applicant's attorney has reviewed the file wrapper on PAIR and has found that the reference is in fact filed with a translation. The reference is a one page document accompanied by a one page translation. The brevity of the reference may have led to it being overlooked. A further copy of the reference and translation are provided herewith. It is respectfully submitted that the reference was probably filed and the consideration of the reference is required. It is further submitted that if a next Office Action is issued wherein rejections based on the reference are made, the Office Action cannot be made final

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since the reference should have been properly considered and such rejections made in the present Office Action.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102(b) & §103(a)

Claim 12 is rejected under 35 U.S.C. § 102(b) as being anticipated by the Okada '655 reference. Claim 13 is rejected under 35 U.S.C. §103(a) as obvious over the Watanabe (5,914,548) reference in view of the Okada reference.

Claim 13 is incorporated into claim 12. Applicant herein respectfully traverses these rejections. It is respectfully submitted that the cited reference is deficient with regard to the following.

The Examiner alleges that the Okada reference discloses:

a rotation detector for outputting an induced voltage produced by an input exciting voltage according to a relative rolling element and the non-rolling element ((Page 2, Paragraph [0012]) and (Page 11, Paragraph [0147])), a generator for generating a voltage using energy provided by relative rotation of the rolling element relative to the non-rolling element and inputting the voltage as an input exciting voltage to the rotation detector[.]

Office Action, page 3. However, it is applicant's belief that the Examiner either has misinterpreted the Okada reference or the present claims. The following explanation is submitted for the purpose of clarifying the allowable subject matter of present claim 12.

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The Okada the reference fails to disclose a generator providing a voltage “and inputting the voltage as an input exciting voltage to said rotation detector.” Instead, the device of the Okada reference provides a generator which generates an output signal which itself indicates rotation of a rotor formed of magnets. The portions of the Okada specification referenced by the Examiner read as follows:

An electric generator for generating an electric power as one of the outer and inner members rotates relative to the other of the outer and inner members is uniquely provided in combination with a wireless transmitting means for transmitting wireless a signal indicative of the number of revolutions of the wheel that is outputted from the electric generator .

Paragraph [0012], and

FIG. 9 illustrates a third embodiment of the present invention. This embodiment is directed to a first generation of the wheel support bearing assembly of the inner race rotating type wherein the electric generator 4 serving as the rotation sensor is a thrust type.

Paragraph [0147]. Neither of these portions indicates that the generator supplies a voltage to an exciting winding of a rotation detector. A further review of the Okada reference indicates that no such structure is contemplated. Indeed, the Okada reference clearly indicates that the generator itself provides the rotation signal in stating:

According to the structure, since the electric generator capable of generating an electric power in response to a relative rotation between the outer member and the inner member is employed, it is possible to detect the number of revolutions of the wheel by the utilization of an output of the electric generator as a signal indicative of the number of

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revolutions of the wheel.

Okada, paragraph [0013].

This usage of a generator for providing a rotation signal is very different from providing a voltage which drives the exciting coil of a rotation detector because the generator in the Okada reference in and of itself generates a signal indicating rotation. The Okada reference does not teach a rotation detector *and* a generator which drives an exciting coil of the rotation detector.

Since it appears that there maybe a misunderstanding of the operation of the presently claimed invention, the Examiner's attention is directed to page 6, line 15 through page 7 line 7 wherein operation of the rotation detector is described, in particular, operation of the exciting winding is discussed. Furthermore, Fig. 13 shows generator 40 applying voltage to the exciting windings 13 and is described in the specification. Claim 12 requires that *the generator* apply a voltage to the exciting winding. Such a configuration is in no way suggested by the Okada reference because it employs a generator itself to produces a rotation signal as discussed in the reproduced portions of the Okada reference.

Claim 12 is now amended to incorporated the subject matter of claim 13 which relates the construction of the generator. Claim 12 recites (as was originally recited in claim 13):

a generating stator provided as said second portion in said non-rolling element and having an electric coil opposing the

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magnetic poles of said generating rotor in an radial direction, the electric coil producing the voltage input as said exciting voltage[.]

Recitation of the electric coil of the stator of the generator clearly sets forth that the generator stator coil and the exciting coil are different elements as required by the language indicating that the generator applies voltage to the exciting coil of the rotation detector.

Finally, claim 12 now includes recitation of components of the rotation detector. Specifically, claim 12 indicates that the rotation detector has:

an exciting winding and output windings wound to said stator, wherein said output windings induce a voltage according to a gap permeance between said rotor and said stator in response to said exciting voltage inputted to said exciting winding.

Thus, claim 12 requires both an electric coil for the generator and an exciting winding for the rotation detector. Hence, it is respectfully submitted that claim 12 sets forth that the generator drives the rotation detector by applying a voltage to the rotation detector and that the applied voltage is not the voltage output by the output windings.

Thus, it is respectfully submitted that the rejected claim is not anticipated no rendered obvious by the applied reference(s) for the reasons stated above. Reconsideration of the rejection of the claim 12 and its allowance are respectfully

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requested.

Claims 3 and 21 are rejected as obvious over the Watanabe reference in view of Makiuchi reference under 35 U.S.C. §103(a). The applicant herein respectfully traverses this rejection. For a rejection under 35 U.S.C. §103(a) to be sustained, the differences between the features of the combined references and the present invention must be obvious to one skilled in the art.

In making the rejection the Examiner alleges " Watanabe discloses a rolling element (12) formed as an inner ring of a bearing." It is respectfully submitted that this is not the case because the inner bearing rings 17 and 18 are themselves mounted on the rotor shaft 12 as is conventional.

Furthermore, the Examiner admits the Watanabe fails to disclose a rotor formed as part of a surface of an inner ring of a bearing. The Examiner then relies on the Makiuchi reference for allegedly teaching a rotor provided on an inner ring of a bearing. This is also not the case in the device of the Makiuchi reference. Neither the Watanabe reference nor the Makiuchi reference discloses the feature of claims 3 and 21 requiring that a rotor is configured as part of the inner ring of a roller bearing, and that the outer peripheral shoulder (claim 3) or outer circumferential surface (claim 21) of the inner ring is provided with a flat surface to constitute the rotor.

In the above applied references, a rotor must be separately provided,

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making the configuration complicated, whereas in the configurations of claims 3 and 21 of the current application, the roller bearing has an inner ring that is formed as the rotor. This novel adaptation provides a simpler configuration of the rotation detector.

It appears that characterization of the Makiuchi reference is a misinterpretation of the reference, possibly because it is in Japanese. The rotor 5 of the resolver of the Makiuchi reference is not an inner ring of a bearing and is instead itself intended to be mounted on a shaft supported by a bearing. The application is directed to the resolver, ancillary mounting parts are not shown but it is understood that such resolvers are mounted on shafts. The reference does not teach that the rotor is formed as part of an inner ring. Hence, one skilled in the art would not be inclined to modify an inner ring of a bearing to be a rotor as none of the references make such suggestion.

Thus, it is respectfully submitted that the rejected claims 3 and 21 are not obvious in view of the cited reference(s) for the reasons stated above. Reconsideration of the rejections of claims 3 and 21 and their allowance are respectfully requested.

Claims 8 and 9 are rejected under 35 U.S.C. §103(a) as obvious over the Watanabe (5,914,548) reference in view of the Sakamoto reference. The Sakamoto reference is cited by the Examiner for teaching "the rotor being a nut mounted on

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the hub wheel so as to secure the inner ring to the hub wheel wherein the nut includes a flat portion ((Figure 2) and (Column 6, Lines 36-68))." Figure 2 shows a nut 30 used as a rotor.

Claim 8 is amended to recite that the nut is hexagonal. In contrast, the outer peripheral surface of the nut described in the Sakamoto reference is a cylindrical shape having indentations formed by grooves and ridges. Col. 6, lines 36-40. The current application uses a conventionally shaped hexagonal nut head as-is to serve as the rotor, allowing the nut to be tightened with a conventional operation, whereas the Sakamoto reference requires a special jig. Hence, since the Sakamoto reference teaches that a specially configured nut is used as the rotor, one would not be inclined to attempt to adopt a hexagonal shaped nut because Sakamoto made special effort to use other.

Thus, it is respectfully submitted that the rejected claims 8 and 9 are not obvious in view of the cited reference(s) for the reasons stated above. Reconsideration of the rejections of claims 8 and 9 and their allowance are respectfully requested.

Claims 15-20 are rejected under 35 U.S.C. §103(a) as obvious over the Watanabe (5,914,548) reference in view of the Makiuchi ('187) and Okada references. Claim 15 is respectfully submitted as patentable based upon the above noted differences between the generator arrangement of the Okada reference and

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that of the present invention as presented in claim 12. Claims 16-20 depend from claims discussed above and are respectfully submitted as patentable based on the noted features of their base claims.

Thus, it is respectfully submitted that the rejected claims 15-20 are not obvious in view of the cited reference(s) for the reasons stated above. Reconsideration of the rejections of claims 15-20 and their allowance are respectfully requested.

NO FEE DUE

No fee is believed due. If there is any fee due the USPTO is hereby authorized to charge such fee to Deposit Account No. 10-1250.

In light of the foregoing, the application is now believed to be in proper form for allowance of all claims and notice to that effect is earnestly solicited.

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Respectfully submitted,
JORDAN AND HAMBURG LLP

By CB Hamburg by H F Ruschmann
C. Bruce Hamburg
Reg. No. 22,389 *Reg 35,341*
Attorney for Applicants
and,

By H F Ruschmann
Herbert F. Ruschmann
Reg. No. 35,341
Attorney for Applicants

Jordan and Hamburg LLP
122 East 42nd Street
New York, New York 10168
(212) 986-2340

enc: JP 56 110304 and translation.

⑨ 日本国特許庁 (JP)

⑩ 実用新案出願公開

⑪ 公開実用新案公報 (U)

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⑬ 公開 昭56年(1981)8月26日

審査請求 有

(全 2 頁)

⑭ シンクロ等の角度検出器

⑮ 発 明 昭56-8827

⑯ 出 願 昭56(1980)1月29日

⑰ 考 案 者 正木耕一

飯田市橋本120-12

⑱ 出 願 人 多摩川精機株式会社

東京都大田区新蒲田3丁目19番
9号

⑲ 代 理 人 弁理士 曾我道昭 外1名

⑳ 実用新案登録請求の範囲

軸受の内輪及び外輪の一方をケースと一体に形成し、これらの内輪及び外輪間に対向した固定子と固定子とを設けたことを特徴とするシンクロ等の角度検出器。

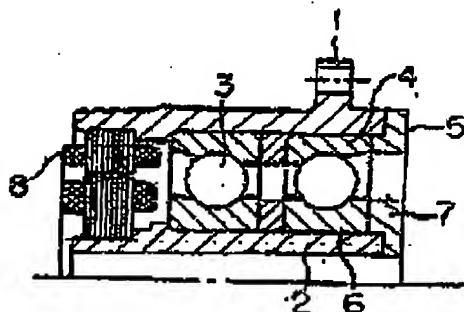
図面の簡単な説明

第1図は従来のシンクロ等の角度検出器の構造

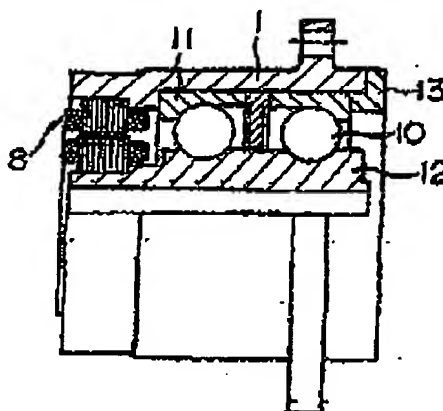
の概要を説明する部分断面図、第2図はこの考案による構造を説明する第1図と同様の縦断面図である。

1…外ケース、2…内ケース、3…軸受、4…軸受外輪、5…抑え板、6…軸受内輪、7…抑え板、8…検出器、10…軸受、11…軸受外輪、12…内ケース、13…抑え板。

第1図



第2図



Translation of JP56-110304

August 26, 1981

Utility Model Claim

A synchroscope or other angle detection device wherein one of a bearing inner ring or bearing outer ring is formed integrally with a case, and a rotor and stator opposing the inner ring and outer ring are provided.

Brief description of the drawings

Fig. 1 is a partial cross-sectional view for explaining the overview of the structure of a conventional synchroscope or other angle detection device. Fig. 2 is like Fig. 1 a longitudinal cross-sectional view for explaining the structure according to this utility model.

- 1: outer case
- 2: inner case
- 3: bearing
- 4: bearing outer ring
- 5: retainer plate
- 6: bearing inner ring
- 7: retainer plate
- 8: detector
- 10: bearing
- 11: bearing outer ring
- 12: inner case
- 13: retainer plate